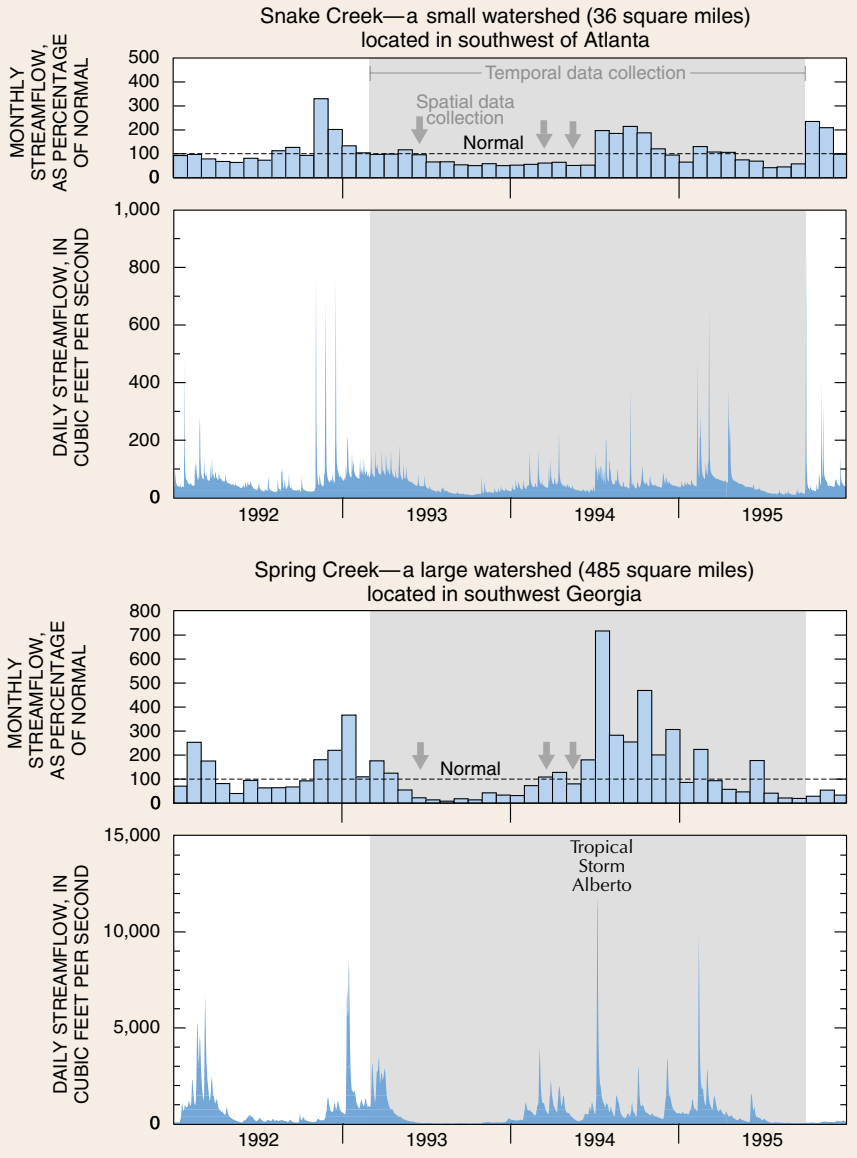
HYDROLOGIC CONDITIONS

The ACF River Basin has a warm, humid, temperate climate. Average annual precipitation ranges from 45 to 60 inches. During the period of intensive data collection (1993–95), average annual precipitation ranged from about 85 to 155 percent of normal. An extended period of dry weather from the summer of 1993 through the winter of 1994 resulted in below normal streamflows throughout much of the watershed. In contrast, rainfall from Tropical Storm Alberto caused extreme flooding in July 1994—primarily in the Flint River Basin.

Unusual hydrologic conditions such as droughts or floods may cause substantial changes in stream and ground-water quality and in aquatic communities. Although the water quality associated with these conditions may be of great interest, the short-term changes in water quality caused by droughts or floods can alter or mask the effects on water quality from other human and environmental factors being studied.

Stable streamflow conditions existed during spatial surveys, shown by arrows (three basinwide synoptic surveys and bed sediment and tissue surveys, pages 6 and 7), so that differences in water quality among sampled sites relate to human and environmental factors. However, the extended period of dry weather coincided with the data-collection period to evaluate temporal changes in water quality at stream locations representing various land uses (Basic and Intensive Fixed Sites, pages 6 and 7). The temporal data-collection period is shown by shading on the adjacent graph. Aycocks Creek, located in an area of cropland underlain by karst bedrock, ceased to flow for 6 months from June to December 1993, thus limiting comparisons among Aycocks Creek and other sites.



The ACF River Basin was subjected to periods of unusually dry and wet weather during the study period.

Dry weather from the summer of 1993 through the winter of 1994 caused many streams, such as Aycocks Creek—a tributary to Spring Creek (hydrograph shown above)—to cease flowing.

Rainfall from Tropical Storm Alberto caused devastating floods in parts of the ACF River Basin. (Photograph of the Flint River at Newton, Georgia, is by Timothy W. Hale, USGS, July 1994.)